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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/563,705	01/05/2006	Hideo Hada	SHIGA7.038APC	2931

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EXAMINER	
CHU, JOHN S Y	

ART UNIT	PAPER NUMBER
1795	

NOTIFICATION DATE	DELIVERY MODE
03/03/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

jcartee@kmob.com
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Office Action Summary	Application No.	Applicant(s)	
	10/563,705	HADA ET AL.	
	Examiner	Art Unit	
	John S. Chu	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 January 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *1/5/06,11/29/07,12/7/07*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This Office action is in response to the application filed January 5, 2006.

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1-3, 7-13 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim1-14 of copending Application No. 11/347,167. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claimed positive type resist composition includes a polymer having three structural units the first unit is derived from a (meth)acrylate ester comprising an acid dissociable polycyclic group, the second unit is derived from a (meth)acrylate ester comprising a lactone containing monocyclic group or polycyclic group and the third unit is derived from a meth)acrylate ester comprising a hydroxyl group containing a polycyclic group. The glass transition temperature of the copolymers is not explicitly disclosed, however the same units are

used as disclosed in the current specification wherein the properties can be inherently present due to the inseparable nature of chemical components and their properties.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

3. Claims 1-13 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-20 of U.S. Patent No. 7,074,543. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claimed positive photoresist composition comprising the copolymer mixture of two resins in the U.S. Patent 7,074,543 would extend any grant to the current application because the glass transition temperatures of the mixed resins would inherently possess the same range as claimed due to the inseparable nature of the polymers and their properties.

It would have been *prima facie* obvious to one of ordinary skill in the art of positive resist compositions to duplicate the mixed resin of with the reasonable expectation of same or similar results as disclosed in the U.S. Patent to IWAI et al (7,074,543) for excellent resolution and wide development latitude.

4. Claims 1-3, 7-13 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-8, of U.S. Patent No. 7,316,889 (U.S Serial No. 11/347,423), claims 1-7, of U.S. Patent No. 7,316,888 (U.S Serial No. 11/347,102), claim 1, of U.S. Patent No. 7,323,287 (U.S Serial No. 11/347,100) and claims 1-8, of U.S. Patent No. still pending of U.S Serial No. 11/347,055. Although the conflicting claims are not identical, they are not patentably distinct from each other because the copolymers include structural units essentially the same as the disclosed copolymers in the specification of the current application,

lacking only the explicit disclosure for the glass transition temperature (Tg). However the Office argues that the properties of same or similar polymers would yield same or similar results with respect to the Tg and other properties, because the polymers and their properties are inseparable.

It would have been *prima facie* obvious to one of ordinary skill in the art of photoresist compositions and copolymers used in deep UV exposures to duplicate the copolymers of the copending cases with the reasonable expectation of same or similar results for excellence in balance of resolution, profile, sensitivity, dry etching resistance and adhesion.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1-3, 7-13 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over UETANI et al (6,579,659).

The claimed invention is drawn to the following;

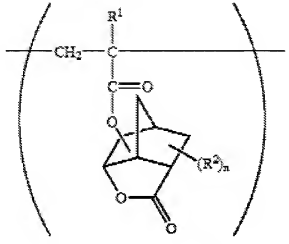
1. A resist composition, comprising a resin component (A) that displays changed alkali solubility under action of acid, and an acid generator component (B) that generates acid on exposure, which is used in a shrink process comprising the steps of: providing a resist layer formed from said resist composition on top of a support, forming a resist pattern in said resist layer, providing a water-soluble coating formed from a water-soluble coating formation agent comprising a water-soluble polymer on top of said resist pattern, and shrinking said water-soluble coating by heating, thereby narrowing a spacing of said resist pattern, wherein

said component (A) is a resin comprising structural units derived from a (meth)acrylate ester, and exhibits a glass transition temperature that falls within a range from 120 to 170°C.

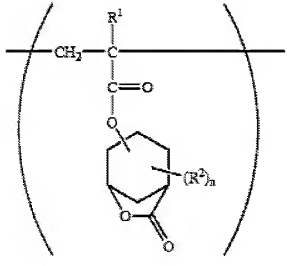
UETANI et al discloses a chemically amplified positive resist composition comprising a copolymer having units (A), (B) and (C) wherein units (A) are defined as the following;

(A): At least one polymeric unit of an alicyclic lactone selected from polymeric units represented by the following formulae (Ia) and (Ib),

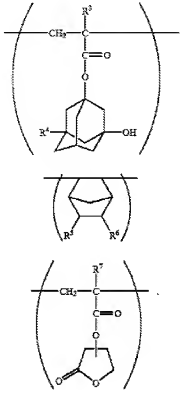
(Ia)



(Ib)



Units (B) include the following:



And unit (C) includes a polymeric group which becomes alkali-soluble upon the cleavage by an acid.

Applicants are directed to Synthesis Examples 15 and 16 in column 14, lines 35 et seq. and Examples 11 and 12 found in Table 1, column 16, lines 50 et seq. wherein the following copolymers are disclosed below:

RESIN SYNTHESIS EXAMPLE 15

Synthesis of 2-methyl-2-adamantyl Methacrylate/3-hydroxy-1-adamantyl Acrylate/5-methacryloyloxy-2,6-norbornanecarbolactone Copolymer (Resin A11)

2-Methyl-2-adamantyl methacrylate, 3-hydroxy-1-adamantyl acrylate and 5-methacryloyloxy-2,6-norbornanecarbolactone were charged at a molar ratio of 2:1:1 (20.0 g:9.5 g:9.5 g). Thereto, methylisobutyl ketone, the amount thereof being 2.5 times by weight based on the whole monomers, was added to give a solution. Further, azobisisobutyronitrile as an initiator was added in an amount of 3 mol % based on the whole monomer, and temperature of the resulting solution was raised to 85° C. Keeping this temperature, the solution was stirred for about 5 hours. Then, the resulting reaction mass was cooled and poured into a large amount of methanol to cause crystallization. This crystallization operation was repeated three times to purify the resin, obtaining a copolymer having an average molecular weight of about 12200. This is called Resin A11.

RESIN SYNTHESIS EXAMPLE 16

Synthesis of 2-ethyl-2-adamantyl Methacrylate/3-hydroxy-1-adamantyl Acrylate/5-methacryloyloxy-2,6-norbornanecarbolactone Copolymer (Resin A12)

2-Ethyl-2-adamantyl methacrylate, 3-hydroxy-1-adamantyl acrylate and 5-methacryloyloxy-2,6-norbornanecarbolactone were charged at a molar ratio of 2:1:1 (20.0 g:8.9 g:8.9 g). Thereto, methylisobutyl ketone, the amount thereof being 2.0 times by weight based on the whole monomers, was added to give a solution. Further, azobisisobutyronitrile as an initiator was added in an amount of 3 mol % based on the whole monomer, and temperature of the resulting solution was raised to 85° C. Keeping this temperature, the solution was stirred for about 5 hours. Then, the resulting reaction mass was cooled and poured into a large amount of methanol to cause crystallization. This crystallization operation was repeated three times to purify the resin, obtaining a copolymer having an average molecular weight of about 12300. This is called Resin A12.

The copolymers include structural units essentially the same as the disclosed copolymers in the specification of the current application, lacking only the explicit disclosure for the glass transition temperature (Tg). However the Office argues that the properties of same or similar polymers would yield same or similar results with respect to the Tg and other properties, because the polymers and their properties are inseparable.

It would have been *prima facie* obvious to one of ordinary skill in the art of photoresist compositions and copolymers used in deep UV exposures to duplicate the copolymers found in Examples 11 and 12 with the reasonable expectation of same or similar results for excellence in balance of resolution, profile, sensitivity, dry etching resistance and adhesion.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Chu whose telephone number is (571) 272-1329. The examiner can normally be reached on Monday - Friday from 9:30 am to 6:00 pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Cynthia Kelly, can be reached on (571) 272-1526

The fax phone number for the USPTO is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PMR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/John S. Chu/
Primary Examiner, Art Unit 1795

J.Chu
February 1, 2008